

XVIII.—On the Structure of the Shell of *Rhynchonella Geinitziana*. By WILLIAM B. CARPENTER, M.D., F.R.S.

To the Editors of the *Annals and Magazine of Natural History*.

GENTLEMEN,

Feb. 17, 1857.

I lose no time in communicating to you the result of an examination which I have this day been enabled to make, of the shell of *Rhynchonella Geinitziana*; the existence of perforations in which, "as distinct and regular as those of any Terebratulidæ," was positively affirmed by Prof. King, in your pages, about a year ago (*A. N. H.* vol. xvii. p. 334). In my comments upon Prof. King's statements as to this and other points relating to the shell-structure of Brachiopoda, I remarked (p. 504) that I had seen enough to satisfy me that Prof. King had some grounds for this assertion, but *not* enough to satisfy me that the perforations extend through the entire thickness of the shell, and are therefore the equivalents of those of Terebratulidæ. In order to determine this question, specimens are required in which the shell has neither been reduced by abrasion on its external surface, nor has had its original texture obscured by metamorphic action. I had strong reason to believe that in one or both of these particulars the specimens at my command were faulty, and I therefore abstained from committing myself to a positive conclusion.

The sequel has proved the justice of my caution. Mr. Davidson has taken the trouble to send all the way to Russia for the specimens of this rare shell contained in the collection of the Corps des Mines of St. Petersburg; and these have been kindly forwarded by General Von Helmersen, the head of that establishment, for the express purpose of being examined by me.

From among the four specimens thus placed before me (which are guaranteed by Mr. Davidson to be specifically identical with the German specimens examined by Prof. King), I selected the one which presented on its exterior the least indication of abrasion or metamorphic action; from this I carefully removed some shreds large enough for microscopic determination; and I am now in a condition to assert positively, that portions of the *external* laminæ of *Rhynchonella Geinitziana*, in which the peculiar texture of the shell is perfectly preserved, *do not show the least evidence of perforations*,—the so-called perforations of Prof. King being therefore only pits upon the internal surface of the shell, analogous to those which present themselves upon the external surface of *Porambonites* and *Trematis*.

I shall be happy to submit this preparation to the inspection of any one who may feel an interest in the question, and remain,

Gentlemen, your obedient Servant,

WILLIAM B. CARPENTER.